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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,960	09/18/2003	Xiaoru Wang	82215ASMR	8319

7590

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EXAMINER
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SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/665,960

Applicant(s)

WANG ET AL.

Examiner

Callie E. Shosho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/18/03</u> . | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION**

**Claim Rejections - 35 USC § 112**

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 7-8 each recite the molecular weight of the polymer phase. The scope of each of the claims is confusing because it is not clear what type of molecular weight this refers to – weight average, number average, etc. Clarification is requested.

**Claim Rejections - 35 USC § 102**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin (U.S. 5,281,261).

Lin discloses composite colorant polymer particles, i.e. modified pigment particle, obtained by polymerizing at least one monomer in the presence of colorant *in situ* using

emulsion polymerization. The monomers include sodium styrene sulfonate salt. The colored resin particles have average particle size of less than 1  $\mu\text{m}$ . The ratio of colorant to polymer is 1:9 to 9:1. The polymer is formed by mixing initiator and pigment dispersion, i.e. pigment, dispersant, water, to which is added monomer and initiator. Attention is drawn to example VIB (col.18, lines 17-56) wherein Lin discloses adding (i) mixture of water, pigment, monomer, and initiator to (ii) mixture of monomer and initiator. Similarly, example IX of Lin discloses adding to mixture of (i) water, pigment, monomer, and initiator, a (ii) mixture of monomer and initiator. Thus, in both examples, a portion of the initiator is added to aqueous colorant mixture, i.e. comprising pigment, monomer, and initiator, before adding a monomer mixture, i.e. monomer and initiator (col.1, lines 8-22 and 40-44, col.5, line 65-col.6, line 46, col.7, lines 40-42, col.8, lines 65-66, col.9, lines 15-26 and 57-65, col.10, lines 4-15, col.12, lines 54-59, and col.13, lines 10-16 and 54-59). There is no explicit disclosure that the composite colorant polymer particles are stable, i.e. do not flocculate for up to 20 minutes when a dispersion containing the particles is added to acetone at 1% by weight, as presently claimed. However, given that Lin discloses composite colorant polymer particles identical to that presently claimed, it is clear that the composite colorant polymer particles would inherently possess same stability as presently claimed.

It is noted that the present claims recite “consisting essentially of” transitional language with respect to the aqueous colorant mixture, i.e. “consisting essentially of colorant particles, dispersant or surfactants, and water”. While Lin discloses that the aqueous colorant mixture contains monomer, on the one hand, it is noted that while it is recognized that the phrase “consisting essentially of” narrows the scope of the claims to the specified materials and those

which do not materially affect the basic and novel characteristics of the claimed invention, absent a clear indication of what the basic and novel characteristics are, “consisting essentially of” is construed as equivalent to “comprising”. Further, the burden is on the applicant to show that the additional ingredients in the prior art, i.e. monomer, would in fact be excluded from the claims and that such ingredients would materially change the characteristics of the applicant’s invention, See MPEP 2111.03.

On the other hand, it is significant to note that in example VIB of Lin, for instance, it is disclosed that in the aqueous colorant mixture the monomer is utilized as a wetting agent to disperse pigment, i.e. functions as a dispersant, and thus, the monomer in the aqueous colorant phase of Lin would fall within the scope of the present claims, i.e. aqueous colorant mixture of Lin contains only water, pigment, and dispersant (monomer).

In light of the above, it is clear that Lin anticipates the present claims.

5. Claims 1 and 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Shintani et al. (U.S. 4,623,689).

Shintani et al. disclose stable composite colorant polymer particles, i.e. stable colored polymer, which is formed in the presence of colorant *in situ* using emulsion polymerization wherein the colored polymer is obtained from monomers such as sodium styrene sulfonate, butadiene, isoprene, acrylonitrile, alkyl (meth)acrylate, and styrene. The polymer has average particle size of less than 0.3  $\mu\text{m}$ , or for instance, 0.12  $\mu\text{m}$  (col.2, line 60-col.3, line 42, col.3, lines 49-50, col.5, lines 25-26, col.7, lines 33-42, col.9, lines 7-12, and example 35). Attention is drawn to example 35 that discloses first adding initiator, i.e. sodium metabisulfite, to colorant

mixture then adding this mixture to monomer and additional initiator, i.e. butyl hydroperoxide.

Thus, Shintani et al. add portion of an initiator to colorant mixture before adding monomer mixture.

Shintani et al. disclose that the composite colorant polymer particles are stable even when stored for long times (col.9, lines 36-38), however, there is no explicit disclosure that the particles are stable as defined by the present claims, i.e. do not flocculate for up to 20 minutes when a dispersion containing the particles is added to acetone at 1% by weight, as presently claimed. However, given that Shintani et al. disclose composite colorant polymer particles identical to that presently claimed, it is clear that the composite colorant polymer particles would inherently possess same stability as presently claimed.

In light of the above, it is clear that Shintani et al. anticipates the present claims.

**Claim Rejections - 35 USC § 103**

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (U.S. 5,281,261) or Shintani et al. (U.S. 4,623,689) either of which in view of Miyabayashi et al. (U.S. 6,271,285).

The disclosures with respect to Lin and Shintani et al. in paragraphs 4 and 5 are incorporated here by reference.

The difference between Lin or Shintani et al. and the present claimed invention is the requirement in the claims that the polymer is crosslinked.

Miyabayashi et al., which is drawn to ink jet ink, disclose using a crosslinked polymer given that such polymer permits wettability of the surface of the nozzle plate by the ink composition to be further reduced which allows the ink to be more stably ejected (col.4, lines 50-57).

In light of the motivation for using crosslinked polymer disclosed by Miyabayashi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such polymer in the composite colorant polymer particles of Lin or Shintani et al. in order to produce ink which is stably ejected from printer, and thereby arrive at the claimed invention.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shintani et al. (U.S. 4,623,689) in view of Lin (U.S. 5,281,261).

The disclosure with respect to Shintani et al. in paragraph 5 above is incorporated here by reference.

The difference between Shintani et al. and the present claimed invention is the requirement in the claims of ratio of colorant to polymer in the composite colorant polymer particles.

Lin discloses composite colorant particles comprising colorant and polymer in ratio of 1:9 to 9:1 in order to produce composite colorant with good colloidal stability (col.10, lines 1-8).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use colorant and polymer in ratio of 1:9 to 9:1 in the composite colorant polymer particles of Shintani et al. in order to produce composite colorant polymer particles with good stability, and thereby arrive at the claimed invention.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.




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Chen et al. (U.S. 6,194,488) disclose method of making polymer coated pigment particles wherein portion of initiator is added to colorant before addition of monomer, however, there is no disclosure of water as required in the present claims, i.e. no aqueous colorant mixture as presently claimed.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Callie E. Shosho  
Primary Examiner  
Art Unit 1714

CS  
8/20/05